[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 50, 52, and 100

[Docket No. PRM-50-103; NRC-2011-0189]

Measurement and Control of Combustible Gas Generation and Dispersal

AGENCY: Nuclear Regulatory Commission.

ACTION: Petition for rulemaking; notice of receipt.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC or the Commission) has received a petition for rulemaking (PRM), dated October 14, 2011, from the Natural Resources Defense Council, Inc. (NRDC or the petitioner). The petitioner requests that the NRC amend its regulations regarding the measurement and control of combustible gas generation and dispersal within a power reactor system. The NRC is not instituting a public comment period for this PRM at this time.

DATES: [insert date of publication in FR]

ADDRESSES: You can access publicly available documents related to this action, including the petition for rulemaking, using the following methods:

- **NRC's Public Document Room (PDR):** The public may examine and have copies made, for a fee, publicly available documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

- **NRC's Agencywide Documents Access and Management System (ADAMS):**

Publicly available documents created or received at the NRC are available online in the NRC Library at http://www.nrc.gov/reading-rm/adams.html. From this page, the public can gain entry into ADAMS, which provides text and image files of the NRC's public documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's PDR reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The PRM is available in ADAMS under ADAMS Accession Number ML11301A094.

- **Federal Rulemaking Web Site:** Supporting materials related to the petition for rulemaking can be found at http://www.regulations.gov by searching on Docket ID NRC-2011-0189. Address questions about NRC dockets to Carol Gallagher; telephone: 301-492-3668; e-mail: Carol.Gallagher@nrc.gov.

FOR FURTHER INFORMATION CONTACT: Cindy Bladey, Chief, Rules, Announcements, and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: 301-492-3667, e-mail: Cindy.Bladey@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Introduction

On October 14, 2011, Mr. C. Jordan Weaver, a Project Scientist for the Natural Resources Defense Council, Inc. (NRDC or petitioner) submitted a cover letter and a petition for rulemaking (PRM) to revise 10 CFR 50.44 (ADAMS Accession No. ML11301A094). The PRM, which was an attachment to the NRDC cover letter signed by Mr. Weaver, was itself signed by Mr. Mark Edward Leyse. Mr. Leyse has previously filed several other petitions for rulemaking with the NRC on matters related to the NRC's requirements on the emergency core cooling system (ECCS). *See* PRM-50-73 (ADAMS Accession No. ML012560310); PRM-50-73A (ADAMS Accession No. ML020300271); PRM-50-76 (ADAMS Accession No. ML022240009); PRM-50-84 (ADAMS Accession No. ML070871368); PRM-50-93 (ADAMS Accession No. ML093290250); PRM-50-95 (ADAMS Accession No. ML102770018). The NRDC PRM was docketed by the NRC on October 27, 2011 as PRM-50-103.

II. Petitioner

The NRDC is a national, nonprofit, membership environmental organization incorporated in New York in 1970. The NRDC has offices in Washington, D.C., New York City, San Francisco, Chicago, Los Angeles, and Beijing. The staff membership of NRDC consists of lawyers, scientists, and policy experts. The NRDC states that its purpose is to maintain and enhance environmental quality and monitor Federal agency actions to ensure that Federal statutes enacted to protect human health and the environment are fully and properly implemented. With regard to the NRC, the NRDC asserts that, since its inception in 1970, it has sought to improve the environmental, health, and safety conditions at the nuclear facilities licensed by the NRC and its predecessor agency.

III. Petition

Mark Leyse, an NRDC consultant, researched and authored the PRM. The PRM requests that the NRC amend its regulations "to enhance hydrogen mitigation at all [nuclear power plants] regulated by NRC." The PRM includes six separate rulemaking requests pertaining to pressurized water reactors (PWRs) and boiling water reactors (BWRs).

First, the petitioner requests that the NRC "revise 10 C.F.R. 50.44 to require that all PWRs (with large dry containments, sub-atmospheric containments, and ice condenser containments) and BWR Mark IIIs operate with systems for combustible gas control that would effectively and safely control the potential *total* quantity of hydrogen that could be generated in different severe accident scenarios." The petitioner states that the *total* quantity of hydrogen could exceed the amount generated from the metal-water reaction of 100 percent of the fuel cladding because of contributions produced by the metal-water reaction with non-fuel components of the reactor. The petitioner presents information from various analyses and reports to support this request.

Second, the petitioner requests that the NRC revise 10 CFR 50.44 to "require that BWR Mark Is and BWR Mark IIs operate with systems for combustible gas control or inerted containments that would effectively and safely control the potential *total* quantity of hydrogen that could be generated in different severe accident scenarios." The petitioner states that the *total* quantity of hydrogen could exceed the amount generated from the metal-water reaction of 100 percent of the fuel cladding because of contributions produced by the metal-water reaction with non-fuel components of the reactor. The petitioner presents information from various analyses and reports to support this request.

Third, the petitioner requests that the NRC revise 10 CFR 50.44 "to require that PWRs and BWR Mark IIIs operate with systems for combustible gas control that would be capable of precluding local concentrations of hydrogen in the containment from exceeding concentrations that would support combustions, fast deflagrations, or detonations that could cause a loss of

containment integrity or loss of necessary accident mitigating features." The petitioner presents information from various analyses and reports to support this request.

Fourth, the petitioner asserts that "[t]he current requirement that hydrogen monitors be functional within 90-minutes after the initiation of safety injection is inadequate for protecting public and plant worker safety." Thus, the petitioner requests that the NRC revise 10 CFR 50.44 to "require that PWRs and BWR Mark IIIs operate with combustible gas and oxygen monitoring systems that are qualified in accordance with 10 C.F.R. § 50.49. Petitioner also requests that NRC revise 10 C.F.R. § 50.44 to require that after the onset of a severe accident, combustible gas monitoring systems be functional within a timeframe that enables the proper monitoring of quantities of hydrogen indicative of core damage and indicative of a potential threat to the containment integrity." The petitioner presents information from various analyses and reports to support this request.

Fifth, the petitioner requests that the NRC revise 10 CFR 50.44 to "require that licensees of PWRs and BWR Mark IIIs perform analyses that demonstrate containment structural integrity would be retained in the event of a severe accident." Additionally, the petitioner requests that the NRC revise 10 CFR 50.44 to require licensees of BWR Mark Is and BWR Mark IIs to perform analyses "using the most advanced codes, which demonstrate containment structural integrity would be retained in the event of a severe accident." The petitioner presents information from various analyses and reports to support this request.

Sixth, the petitioner requests that the NRC revise 10 CFR 50.44 to "require that licensees of PWRs with ice condenser containments and BWR Mark IIIs (and any other NPPs that would operate with hydrogen igniter systems) perform analyses that demonstrate hydrogen igniter systems would effectively and *safely* mitigate hydrogen in different severe accident scenarios." The petitioner presents information from various analyses and reports regarding hydrogen igniter systems to support this request.

IV. Determination of Petition

In PRM 50-103, the petitioner raises six issues regarding the measurement and control of combustible gas generation and dispersal within a reactor system. The Commission is currently reviewing the "Recommendations for Enhancing Reactor Safety in the 21st Century: The Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident" (Fukushima Task Force Report, ML111861807), dated July 12, 2011. The six requests included in the PRM relate to Recommendation 6 of the Fukushima Task Force Report: "[t]he task force recommends, as part of the longer term review, that the NRC identify insights about hydrogen control and mitigation inside containment or in other buildings as additional information is revealed through further study of the Fukushima Dai-ichi accident."

The Commission has recently directed staff to engage promptly with stakeholders to review and assess the recommendations of the Fukushima Task Force Report for the purpose of providing the Commission with fully-informed options and recommendations. *See* U.S. Nuclear Regulatory Commission, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," Staff Requirements Memorandum SECY-11-0093, August 19, 2011 (ADAMS Accession No. ML112310021) and U.S. Nuclear Regulatory Commission, "Engagement of Stakeholders Regarding the Events in Japan," Staff Requirements Memorandum COMWDM-11-0001/COMWCO-11-0001, August 22, 2011 (ADAMS Accession No. ML112340693). The NRC has, therefore, decided to consider the issues raised by the PRM in a manner consistent with the process the Commission has established for addressing the recommendations from the Fukushima Task Force Report. Thus, the NRC will defer review of this PRM until the Commission gives further direction on Recommendation 6, to determine whether review of this PRM should be integrated with the effort related to the NRC staff's review of Fukushima Task Force Recommendation 6. The NRC is not requesting public comment at this time but may do so in the future, if it decides public comment would be appropriate.

V. Conclusion

The NRC will coordinate consideration of the issues raised by PRM 50-103 in a manner consistent with the process the Commission has established for addressing the recommendations from the Fukushima Task Force Report and is not providing a separate opportunity for public comment on this PRM at this time.

Dated at Rockville, Maryland, this 29th day of December 2011.

For the Nuclear Regulatory Commission.

/RA/

Andrew L. Bates,
Acting Secretary of the Commission.

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